VOLOSIEVICI-MIRZA, Lucia; BALAN, Marioara; DIMITRIU, Carmen; GHEORGHIU, Tony; BARBARASA, Cecilia.

Types of nervous system in rats. Stud. cercet. neurol. 10 no.1: 23-35 F'65.

VOLOSIN, Antal, dr.

Uterine perforation in our 10-year clinical material. Orv. hetil. 105 no.31:1453-1455 2 Ag '64.

1. Karcagi Varosi Tanacs Korhaza, Szulo- es Nobeteg Osztaly.

VOLOSINOVSZKI, Janos (Debrecen)

Technical workers' academies in the Debrecen vehicle repair plant. Magy vasut 8 no.1:3 1 Ja'64

VOLOSINOVSZKY, Janos (Debrecen)

Polytechnical instruction in the Debrecen Vehicle Repair Shop. Magy vasut 8 no.10:4 16 My '64.

VOLOSIVETS, A.I.

Study of plague phages and the resistance to them in bacterial mutants. Report No.1: Biological properties of plague phages. Biul. eksp. biol. i med. 56 no.9:81-84 S '63.

(MIRA 17:10)

1. Iz Vsesoyuznogo nauchno-issledovatel'skogo instituta "Mikrob" (dir. - prof. N.I. Nikolayev), Saratov. Predstavlena deystvitel'nym chlenom AMN SSSR N.N. Zhukovym-Verezhnikovym.

VOLOSIVETS, A.I.

Phage-resistant mutants of plague bacteria and their properties. Biul. eksp. biol. i med. 56 no.11:107-110 O [i.e. N] '63. (MIRA 17:11)

1. Iz Vsesoyuznogo nauchno-issledovatel'skogo instituta "Mikrob" (dir. - prof. N.I. Nikolayev), Saratov. Predstavlena deyatvitel'nym chlenom AMN SSSR N.N. Zhukovym - Verezhnikovym.

ACCESSION NR: AP4026375 S/0219/64/057/003/0071/0075

AUTHOR: Volosivets, A. I.

TITLE: Phagoresistant mutant formation frequency in cell populations of plague bacteria virulent strains

SOURCE: Byul. eksper. biologii i meditsiny*, v. 57, no. 3, 1964, 71-75

TOPIC TAGS: plague bacteria, virulent strain, avirulent strain, phagoresistant mutant, bacteriophage, phagoresistant mutant formation frequency, phagoresistant mutant property

ABSTRACT: The present study is a continuation of an earlier investigation in which phagoresistant mutants formed in virulent strains of plague bacteria were found to vary in their properties more than those formed in avirulent strains. In this work, four virulent strains of plague bacteria were investigated to find phagoresistant mutant formation frequency and to determine the nature of phagoresistant mutant properties. For methods of determining the formation frequency and the properties of phagoresistant mutants the reader is

Card 1/2

ACCESSION NR: AP4026375

referred to the earlier study. Properties of initial colonies of the virulent strains were compared with those of the phagoresistant mutants isolated from the virulent strains. Results show that the frequency of phagoresistant mutant formation in virulent strains is lower than in avirulent strains. The frequency does not appear dependent on the phage under examination, but somewhat dependent on the degree of virulence of the investigated strains. Phagoresistant mutant properties are characterized by instability. Sensitivity of initial colonies to phage action resulting in resistant variants and the formation of phagoresistant mutants in the presence of phages suggests that phagoresistant mutant formation is adaptive in origin and contradicts the spontaneous mutation selection hypothesis. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: Vsesoyuzny*y nauchno-issledovatel'skiy protivochumny*y institut "Mikrob" (All Union Scientific-Research Antiplague Institute "Microbe")

SUBMITTED: 09Mar63 ENCL: 00

SUB CODE: LS NR REF SOV: 005 OTHER: 003

Card 2/2

POPOV, G.G.; VOLOSKOV, G.A.; PERCHIKHINA, Ye.A.

Methods for testing plastics for static stress-rupture strength. Zav.lab. 31 no.10:1239-1242 '65. (MIRA 19:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta.

BELOTSERKOVSKIY, A.M.; VOLOSKOV, G.A.

Investigating the effect of vacuum on the quality of secondary polycaprolactam in autoclave liquefaction. Plast.massy no.9:63-66 '61. (MIRA 15:1)

(Asepinone) (Nylon)

L 3571-66 EWT(m)/EWP(w)/EPF(c)/EWP(j)/T WW/EM/RM

ACCESSION NR: AP5024818 UR/0032/65/031/010/1239/1242

620.17 : 678.5.06

AUTHOR: Popov, G. G.; Voloskov, G. A.; Perchikhina, Ye. A.

TITLE: A method for testing plastics for permanent static strength

SOURCE: Zavodskaya laboratoriya, v. 31, no. 10, 1965, 1239-1242

TOPIC TAGS: tensile strength, plastic strength, synthetic material

ABSTRACT: Tests are made for experimentally verifying the hypothesis that the variance in data on the durability of plastics can be reduced by evaluating the load capacity of a specimen from the ratio α of the permanent strength σ_p to the momentary strength σ_m. A batch of specimens was divided into two equal groups by random selection. The first group was tested for momentary tensile strength. The data were arranged in increasing order from σ_{min} to σ_{max}, and each specimen was assigned its own ordinal number. It was assumed that if the second group of specimens were tested in the same manner for momentary strength, the distribution of data would be the same as for the first group. The second group was tested for permanent static tensile strength with the same stress being applied to all specimens. The index of relative load capacity $\alpha = \sigma_p/\sigma_m$ for each specimen has its own value asso-

Card 1/2

ciated with the variance in the individual values of the momentary tests. I. e., in spite of a common stress for all samples in the second group, the specimens are tested at various levels of relative load capacity α. In addition to this, the static durability of the specimen in the second group of tests increases with the individual momentary strength of the specimen. The values of static durability for the specimens in the second group were then arranged in increasing order and each specimen was assigned its own number. The specimens in the second group were then assigned a momentary strength corresponding to the ordinal numbers of the specimens in the first group. Thus for each ordinal number there is a momentary strength σ_m and a static life τ (in hours), the static stress being identical for all specimens. These data are used for plotting a permanent strength curve with the relative load factor α along the y-axis. The results show a considerable reduction in variance of data when compared with momentary strength tests alone. Orig. art. has: 3 figures, 1 table.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut zheleznodorozhnogo transporta (All-Union Scientific Research Institute of Railroad Transportation) 44,55

SUBMITTED: 00 ENCL: 00 SUB CODE: MT, AS
NO REF SOV: 000 OTHER: 000

VOLOSKOV, N.

USSR/Optics K

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10674

Author : Bolokhovskiy, A., Voloskov, N., Foner', I.
Inst : Not Given
Title : High Power Motion Picture Projector for Wide Screen Motion Picture Theatres.

Orig Pub: Kinomekhanik., 1956, No 2, 20-24

Abstract: No abstract.

Card : 1/1

VOLOSKOV, N.; MILYY, K.

Testing motion-picture projectors in workshops and repair stations. Kinomekhanik no.10:33-37 O '53. (MLRA 6:10)
(Moving-picture projectors)

VOLOSKOV, N. N.

"Measures in the case of udder pox in cows."

Veterinariya, Vol. 37, No. 8, 1960, p. 26

Chief Vet-Dr. - Shilovsk Rayon, Ryazan Oblast

VOLOSKOV, N.N.

Measures to be taken in case of udder pox in cows. Veterinariia 37 no.8:26 Ag '60. (MIRA 15:4)

1. Glavnyy veterinarnyy vrach Shilovskogo rayona, Ryazanskoy oblasti.

(Shilovo District--Smallpox in animals)
(Cows--Diseases and pests) (Udder--Diseases)

VOLOSKOV, F. A.

Prevention and therapy in diseases of calves Moskva, Sel'khozgiz , 1949.

112 p. (50-24114)

SF961.V6

VOLOSKOV, P. A.

VOLOSKOV, P. A. (Professor) Creative path of the Merited Worker of Science of RSFSR - Professor P. N. Andreyev.

So: Veterinariya; 24; 10; October 1947; Uncl.
TABCON

VOLOSKOV, P. A. Professor
All-Union Institute of Experimental Veterinary Medicine
"Stages of the development of artificial insemination of agriculture animals."
SO: Veterinariia 25(5), 1948, p. 21

VOLOSKOV, P. A.

Voloskov, P. A. - "Basic causes of sterility in farm animals and measures of prevention," In the symposium: Bor'ba s besplodiyem s.-kh. zhivotnykh, Moscow, 1949 (on cover: 1948), p. 5-13

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949)

VOLOSKOV, P. A., Prof.
"The methods of eradication of sterility of cattle"
SO: Veterinariya 26 (3), 1949, p. 29

VOLOSKOV, P. A.

How to prevent sterility in cows. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1959.
54 p. (51-16181)

SF201.V6

VOLOSKOV

Professor Voloskov, All-Union Institute of Experimental Veterinary Medicine, gave a lecture on "The bases of Michurinite teaching and its application in veterinary medicine", at the first oblast conference of veterinary workers which was held from November 23 to 25, 1949, in Kostroma.

SO: Veterinariia; Vol. 27; No. 2; 58-59; February 1950 Uncl de g

Trans. # 211 by L. Lulich

VOLOSKOV, P. A., Prof.

"The principles and the methods of therapy in veterinary gynecology."

SO: VETERINARIYA 27(12), 1950, p. 34

VOLOSKOV, P.A.

At the XXXII Plenum of Veterinary Section of the All-Union Academy of Agricultural Sciences, held 6-10 October 1950, P.A.Voloskov reported on "The system of measures in the fight against sterility of farm animals and in protection of the young".
SO: Veterinariia; Vol. 28; No. 1; 54-57; January 1951 Unclassified
Trans. # 147 by L. Lulich

VOLOSKOV, P.

"New Discoveries in the Field of Veterinary Medicine" Tr. from the Russian. p. 951, (ZA SOCIALISTICKE ZEMEDELSTVI, Vol. 2, no. 8, August 1952, Praha, Czechoslovakia).

SO: Monthly List of East European Accessions, LC, Vol. 2, No. 11, Nov..1953, Uncl.

VOLOSKOV, P.

Cows

Controlling sterility in cows Kolkh. proizv. 12, No. 1, 1952.

9. Monthly List of Russian Accessions, Library of Congress, June 1952 1953. Unclassified.

VOLOSKOV, P.A., professor.

Fundamental problems in the fight against sterility in cattle.
Veterinariia 30 no.11:38-48 N '53. (MLRA 6:11)

VOLOSKOV, P.A.

Ways of increasing the number of cattle,

Moskva, Znanie, 1954. 30 p.

(Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Seriia 5, no. 5)

1. Stock and stock-breeding - Russia

VOLOSKOV, P. A.

USSR/Agriculture

Card 1/1

Author : Voloskov, P. A., Dr. of Biol. Sciences

Title : Stock raising

Periodical : Nauka i Zhizn', 21/3, 11-13, Mar/1954

Abstract : An epizootic plague killed off cattle in the Soviet Union almost causing irreparable damage to the herds. This has been conquered by the scientists and the farmers, but now loss comes from barrenness. In 1952, as compared with 1940, collective farmers obtained from 100 females, 11 fewer calves, 27 fewer lambs and 163 fewer pigs. Besides, young animals often die. Veterinarians find that proper feeding of the males improves this situation, reducing barrenness.

Institution : .....

Submitted : .....

VOLOSKOV, P.A., professor, doktor biologicheskikh nauk; RUBENKOV, A.A., kandidat biologicheskikh nauk.

Pathogenesis, prophylaxis and therapy of parturient paresis in cows. Veterinariia 31 no.12:38-44 D '54. (MLRA 7:12)

1. Vsesoyuznyy institut eksperimental'noy veterinarii.
(COWS--DISEASES) (PARALYSIS)

VOLOSKOV, P.A., professor; BELEN'KIY, M.L.; KOZNOV, N.A.

Experience in eliminating sterility in cattle. Veterinariia 32 no.7:24-31 Jl '55. (MLRA 8:9)

1.Vsesoyuznyy institut eksperimental'noy veterinarii (for Voloskov).
2.Nachal'nik veterinarnogo otdela Smolenskoy oblasti (for Belen'kiy).
3.Direktor NIVOS (for Koznov).
(STERILITY IN ANIMALS)

VOLOSKOV, P.A., professor.

Infections of generative organs in cattle and prevention methods.
Veterinariia 33 no.5:30-36 My '56. (MLRA 9:8)
(Cattle--Diseases and pests)
(Generative organs--Diseases)

VOLOSKOV, P.A.

[Curing sterility is an important means of increasing livestock and productivity] Likvidatsiia isolovosti - vazhneishii rezerv uvelicheniia pogolov'ia i produktivnosti zhivotnovodstva. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1957. 94 p. (MIRA 11:5)
(Sterility in animals)

VOLOSKOV, P.A., prof.; PARUSOV, V.P., aspirant

Disinfecting bull sperm of Vibrio fetus. Veterinariia 42 no.11:80-81 N '65. (MIRA 19:1)

1. Vsesoyuznyy institut eksperimental'noy veterinarii.

VOLCSKOV, P.A., prof.; SUNAYKIN, A.A., starshiy nauchnyy sotrudnik;
LUCHKO, M.A., starshiy nauchnyy sotrudnik

Treating trichomoniasis in bulls. Veterinariia 42 no.7:80-81
Jl '65. (MIRA 18:9)

1. Vsesoyuznyy institut eksperimental'noy veterinarii.

VOLOSKOV, P.A., doktor biol. nauk, prof.; OSIPOVA, V.N., red.

[Prophylaxis of genital infections in animals] Profilaktika polovykh infektsii zhivotnykh. Moskva, Kolos, 1965. 223 p. (MIRA 18:7)

VOLOSKOV, P.I., prof.; KONNOVA, Z.S., mladshiy nauchnyy sotrudnik

Method for isolating pure cultures of Vibrio fetus. Veterinariia 41 no.1:78 Ja '65. (MIRA 18:2)

1. Vsesoyuznyy institut eksperimental'noy veterinarii.

VOLOSKOV, P.A., prof.; LUCHKO, M.A., aspirant

Pathogenesis of trichomoniasis and the biology of Trichomonas foetus. Veterinariia 40 no.8:30-31 Ag '63.

(MIRA 17:10)

1. Vsesoyuznyy institut eksperimental'noy veterinarii.

VOLOSKOV, P.A., prof.

The 90th anniversary of I.I.Ivanov's birth. Veterinariia 37 no.10:94-95 O '60. (MIRA 15:4)
(Ivanov, Il'ia Ivanovich, 1870-1932)
(Artificial insemination)

VOLOSKOV, P.A., prof.

Results and prospects of research in the field of the physiology and pathology of reproduction in farm animals. Trudy VIEV 23:99-113 '59. (MIRA 13:10)

1. Vsesoyuznyy institut eksperimental'noy veterinarii.
(Reproduction) (Artificial insemination)

VOLOSKOV, P.A., prof., doktor biol.nauk

Physiology of the postnatal period and the effective time for inseminating cows. Zhivotnovodstvo 21 no.8:67-71 Ag '59. (MIRA 12:11)
(Cows)

VOLOSKOV, P.A., prof.

Electric ejaculator for obtaining sperm from bulls and rams.
Veterinariia 36 no.10:47 O '59. (MIRA 13:1)

1. Vsesoyuznyy institut eksperimental'noy veterinarii.
(Semen)
(Veterinary instruments and apparatus)

VOLOSKOV, Petr Alekseyevich, prof., doktor biolog.nauk; RIVKIND, T.D., red.; ATROSHCHENKO, L.Ye., tekhn.red.

[Possibilities for increasing the number of cattle] Rezervy uvelicheniia pogolov'ia krupnogo rogatogo skota. Moskva, Izd-vo "Znanie," 1959. 31 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.5, Sel'skoe khoziaistvo, no.21) (MIRA 12:8)
(Cattle)

VOLOSKOV, Petr Alekseyevich, prof.; ROZHDESTVENSKIY, K.V., red.; GUREVICH, M.M., tekhn.red.

[Fundamentals in the control of sterility 'n cattle] Osnovy bor'by s besplodiem krupnogo rogatogo skota. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1960. 203 p. (MIRA 14:3)
(Sterility in animals) (Cattle breeding)

VOLOSKOV, P.P., polkovnik meditsinskoy sluzhby, kand.med.nauk

Organization of treatment for the slightly wounded during the regrouping of the army. Voen.med.zhur. no.2:76-77 F '58.
(MEDICINE, MILITARY AND NAVAL, (MIRA 11:4)
care for superficial wds. during regrouping operations (Rus)
(WOUNDED AND SICK,
same)

17(6) SOV/177-58-2-14/21

AUTHOR: Voloskov, P.P., Colonel of the Medical Service, Candidate of Medical Sciences

TITLE: On the Organization of Treatment for the Lightly-Wounded During Re-grouping of the Army

PERIODICAL: Voyenno-meditsinskiy zhurnal, 1958, Nr 2, pp 76-77 (USSR)

ABSTRACT: The article deals briefly with problems connected with the treatment of the lightly-wounded during re-grouping operations, when medical units must be re-located, often over considerable distances. The author briefly discusses the case of the 3rd shock army during re-grouping operations on the Baltic front in January, 1945, involving a 500 km march and the transportation of 1058 lightly-wounded troops. He compares the periods required for treatment of lightly-wounded patients during the re-grouping (January), defensive operations (February), and offensive action (March), both from the day the wound was received, and from the date of reception of the patients in the hospitals for the lightly-wounded (GLR). These periods were 72 and 64 days (Jan.), 25 and

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On the Organization of Treatment for the Lightly-Wounded During Re-grouping of the Army

16 days (Feb.), and 29 and 23 days (Mar.) respectively. Moreover, he adds, that the character of the wounds treated during all three periods was similar. The main reason for such long periods of treatment during re-grouping, states the author, was that treatment was possible only during brief halts on the road, and that without benefit of fully set-up hospital units, as the army was under way most of the time. The author also deals with other aspects of normal treatment that suffered as a result of the re-grouping operations on the period required for the treatment of lightly-wounded patients, that these be concentrated in one army GLR in the rear, to join their units after recuperation. There is 1 Soviet reference.

VOLOSOV, V.I.; CHIRIKOV, B.V.

Skin effect in transient operation. Radiotekh. i elektron. 9 no.5:910 My '64. (MIRA 17:7)

L 11420-67 EWT(1) IJP(c)
ACC NR: AP6031268 SOURCE CODE: UR/0057/66/036/009/1649/1651

AUTHOR: Volosov,V.I.; Pal'chikov,V.Yo.; Tsel'nik,F.A.

ORG: none

TITLE: On a method of injecting charged particles into a magnetic mirror system

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 9, 1966, 1649-1651

TOPIC TAGS: magnetic mirror machine, charged particle, electron trapping, magnetic trapping, plasma confinement

ABSTRACT: L.A.Artsimovich (Upravlyayemyye termoyadernyye reaktsii, str. 385.Fizmatgiz, M.,1961) has shown that charged particles can be injected into a magnetic mirror machine by projecting them in the region of the mirror at a small angle to the plane normal to the magnetic field during establishment of the mirror field. The present authors show that it is possible similarly to inject charged particles from behind the mirror, provided the strength of the magnetic field at the injection point is kept proportional to that of the mirror field during establishment of the latter. To test the method, 100 keV electrons were injected into a 40 cm diameter 150 cm long magnetic mirror system with a mirror ratio of 2.5. The injector consisted of a ring-shaped electron gun mounted on the axis of the system, which produced a conical beam of electrons making an angle of 20° with the plane normal to the axis, i.e., having a vertex angle of 140°. The magnetic field at the electron gun was kept proportional

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UDC: 533.9

L 11420-67
ACC NR: AP6031208

3

to the mirror field during the rise of the latter with the aid of a special pulsed solenoid mounted within the chamber. With a beam spread of 10^{o}, some 10% of the injected electrons were trapped between the mirrors. The lifetime of the trapped electrons within the trap was from 0.01 to 0.1 sec and was limited only by scattering on the residual gas. There was observed an increase in the fraction of the injected electrons that were trapped with increasing injection current. This increase is in accord with the theory and is due to space charge effects. At very high injection currents, however, the oscillations reported by G.I.Budker, S.S.Moiseyev, and the present authors (Plasma Physics and Controlled Nuclear Fusion Research (Conference proceedings, Culham, 6-10 Sept., 1965), II, 245, IAEA, Vienna, 1965) limit the density of the trapped particles. The authors thank A.P.Yershov and A.A.Zabrodov for assistance with the experiments. Orig. art. has:4 formulas and 1 figure.

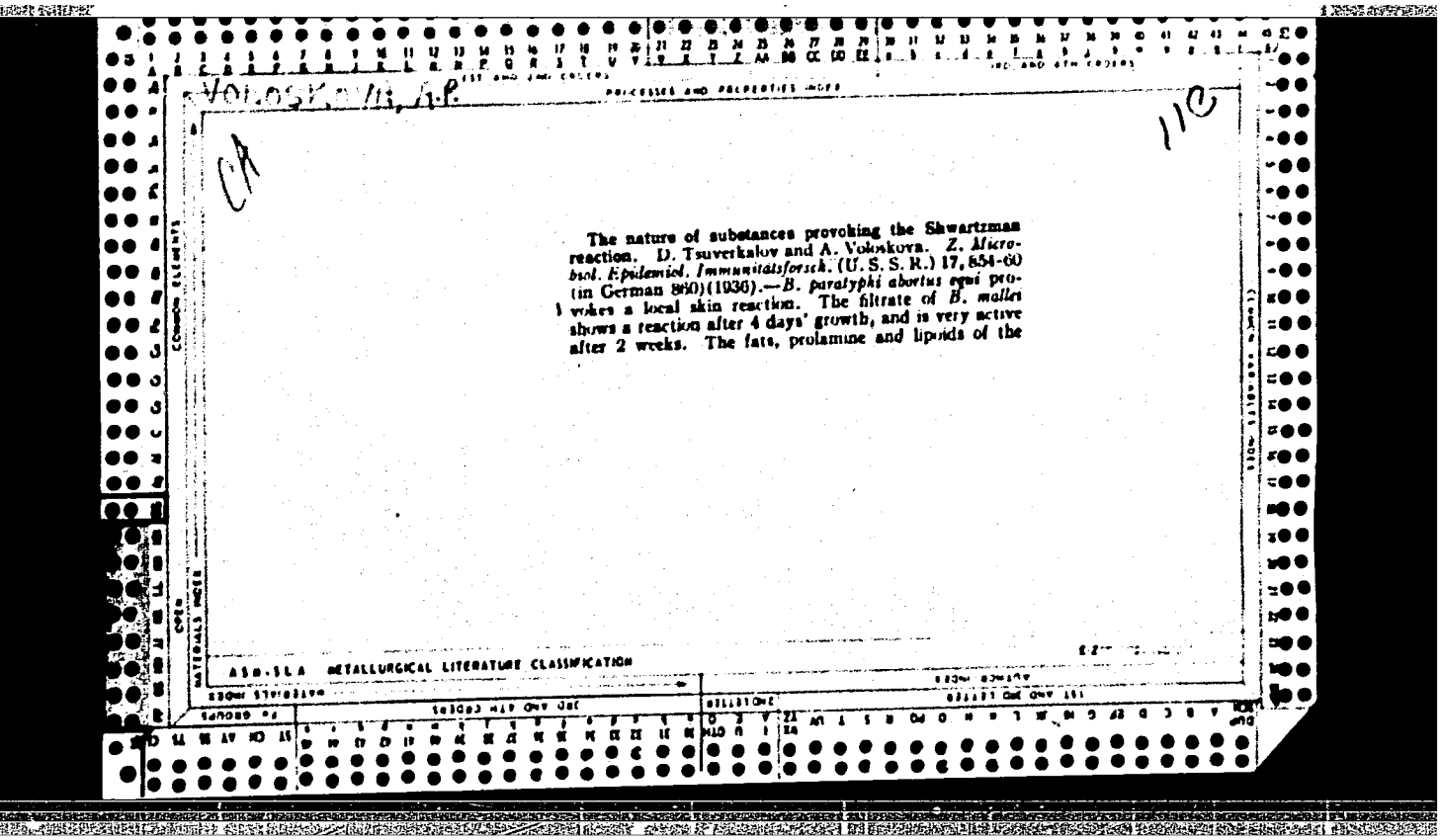
SUB CODE: 20 SUBM DATE: 08Oct65 ORIG. REF: 001 OTH REF: 001

Card 2/2 bab

VOLOSKOV, Ye.P.

Functionally correct immobilization of the wrist. Ortrop.travm.i protez. 21 no.4:31-34 Ap '60. (MIRA 13:9)

1. Iz kafedry ortopedii i travmatologii (zav. - dotsent L.A.Smirnova) Dnepropetrovskogo meditsinskogo instituta.
(WRIST—FRACTURES)



The nature of substances provoking the Shwartzman reaction. D. Tsuverkalov and A. Voloskova. *Z. Mikrobiol. Epidemiol. Immunitätsforsch.* (U. S. S. R.) 17, 854-60 (in German 860)(1936).—*B. paratyphi abortus equi* produces a local skin reaction. The filtrate of *B. mallei* shows a reaction after 4 days' growth, and is very active after 2 weeks. The fats, prolamine and lipoids of the

VOLOSKOVA, A.P.

11 K

Prophylactic properties of chemical preparations in folliculin abortions in rabbits. A. P. Voloskova. *Bull. biol. méd. exptl. U. R. S. S.* 9, 430-1 (1940) (in English).—The injection of 4000 M. U. of folliculin (I) (novo-ovaricrin, manufd. by the Moscow Factory of Endocrine Preparations) alone, with atropine (II), with 1 cc. of 12% NH_4Cl or with 1 cc. of 12% $(NH_4)_2CO_3$ gave 20, 87.5, 57.1 and 58.5%, resp., of normal fetuses. The II injections were made on the 18th, 20th and 22nd days of pregnancy, while those of NH_4Cl and $(NH_4)_2CO_3$ were made daily from the 12th to the 23rd day. I was injected into the rabbits in 4 portions (2 a day) on the 22nd and 23rd days. Thus II possesses prophylactic properties. Since it has been reported that abortions are often related to a high concn. of acetylcholine (III) it is probable that the prophylactic action of II consists in its capacity to neutralize III.

S. A. Karjala

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

VOLOSKOVA, A. P.

11-H

PROCESSES AND PROPERTIES INDEX

ca

Change in the glyco-lipemic relations in the blood under the action of a synestrol preparation. A. P. Voloskova. *Byull. Eksptl. Biol. Med.* 23, No. 2, 146-7(1947).—The results obtained with male hormone prompted V. to conduct a hematological study of the glyco-lipemic relations in the blood by injecting synestrol with simultaneous detn. of the protein in the blood. Four heifers 2 years old were used in these expts. A 1% oil soln. of synestrol was injected into the neck. Tests were made after 3, 5, 24, 48, 72, and 96 hrs., then twice a month thereafter. The result showed increase in cholesterol and decrease in sugar. Therefore, the action of synesterol was analogous to that of a natural hormone. With further treatment the changes were less marked. The quantity of protein did not change during the expts.; 3-5 hrs. after injection of synesterol the no. of leucocytes had increased. Lymphocytes had decreased, polymorphonuclear leucocytes increased and a slight increase in eosinophiles was noticed. W. R. E.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1. VOLOSKOVA, A. P. Senior Sci. assoc. VIEV

2. USSR (600)

3. Hog Cholera

4. Data on blood examination of young pigs infected by bacterial causative organisms of hog cholera. Vol 19
Trudy Vses. inst. eksp. vet. No. 1 - 1952.
1

9. Monthly List of Russian Acessions, Library of Congress, February, 1953. Unclassified.

VOLOSKOVA, A.P.; GLAVATSKIKH, V.A.

Blood picture of clinically health and paratuberculous camels. Izv. AN Turk.SSR no.2:49-53 '55. (MLRA 9:5)

1. Vsesoyuznyy institut eksperimental'noy veterinarii Ashkhabadskiy konnyy zavod.

(CAMELS) (BLOOD--EXAMINATION)

KUDRYAVTSEV, A.A., professor; VOLOSKOVA, A.P., kand.biologicheskikh nauk

Leucocytic indix of intoxication in healthy cows and in cows sick with protein intoxication. Trudy VIEV 22:249-257 '59.
(MIRA 13:10)

(Protein--Toxicology) (Leucocytes)

KUDRYAVTSEV, A.A., prof.; VOLOSKOVA, A.P., kand.biol.nauk.; SADYKHOV, D.P., aspirant

Change in the blood protein content of young cows following protein intoxication. Zhivotnovodstvo 20 no.8:34-35 Ag '58. (MIRA 11:10)

1.Laboratoriya fiziologii Vsesoyuznogo instituta eksperimental'noy veterinarii.
(Blood proteins) (Cows)

Abs Jour : Ref Zhur - Biol., No 22, 1958, No 101355

Author : Voloskova, A. P.
Inst : All-Union Institute of Experimental Veterinary Medicine.
Title : The Extensive Spread of Trichomonads in Cattle.

Orig Pub : Tr. Vses. in-ta eksperim. veterinarii, 1957, 20, 171-178

Abstract : Microscopic examinations (on a crushed drop of the specimen) of substances taken from 208 animals kept on farms where trichomoniasis was in evidence, revealed moving trichomonads in 17 of the animals; 8 pregnant cows, 1 bull, and 1 heifer were included in this group. As multiple examinations of stained specimens which were taken from the vaginal mucosa of cows and from the prepuce of bulls belonging to a herd consisting of 124 heads of cattle were carried out, trichomonads were discovered in all of the animals, even in the 2-4 days

USSR / Diseases of Farm Animals. Diseases Caused by Protozoa. R

Abs Jour : Ref Zhur - Biol., No 22, 1958, No 101355

and 2 weeks old calves among them. Examinations performed on 59 animals from infection-free farms revealed trichomonads only in one cow following an early abortion and in one heifer, and in two heifer calves, which were not yet mated and which were kept separated from young bulls. Bibliography with 20 titles. -- A. D. Musin.

Card 2/2

Card 1/1

SHVALEV, V.N.; CHUMBURIDZE, O.G.; ANDREYEVA, V.A.; VOLOSKOVA, V.Ye.; KURTSIN, I.T.

Changes in the nervous apparatus of the stomach in experimental peptic ulcer. Dokl.AN SSSR 149 no.3:703-706 Mr '63. (MIRA 16:4)

1. Institut fiziologii im. I.P.Pavlova AN SSSR. Predstavleno akademikom V.N.Chernigovskim.

(PEPTIC ULCER) (STOMACK—INNVERVATION)

5(2) SOV/'96-59-1-21/34

AUTHORS: Babkin, M. P., Gol'tsman, I. B., Volkovets, A. I., Lotareva, V. I.

TITLE: Solubility of the Oxalates of Calcium, Strontium, Barium, Iron, Cobalt, Nickel, Manganese, Zinc, Cadmium, and Lead in Aqueous Solutions of Acetic Acid (Rastvorimost' oksalatov kal'tsiya, strontsiya, bariya, zheleza, kobal'ta, nikelya, margantsa, tsinka, kadmiya i svintsa v vodnykh rastvorakh uksusnoy kisloty)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 1, pp 89-91 (USSR)

ABSTRACT: Where it is known in analytical chemistry to precipitate metals as oxalates there have been no numerical data on the solubility of oxalates in acetic acid although an addition of acetic acid is recommended for some precipitations of oxalate in analytical textbooks. For this reason the salts $CaC_2O_4 \cdot H_2O$, $SrC_2O_4 \cdot H_2O$, $BaC_2O_4 \cdot H_2O$, $MnC_2O_4 \cdot 2.5H_2O$, $ZnC_2O_4 \cdot 2H_2O$, $FeC_2O_4 \cdot 2H_2O$, $CoC_2O_4 \cdot 2H_2O$, $NiC_2O_4 \cdot 2H_2O$, $CdC_2O_4 \cdot 3H_2O$ and

Card 1/2 PbC_2O_4 have been kept in acetic acid of various concentrations

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at room temperature for four days and then at 25° for four hours, whereafter the undissolved oxalate was removed by filtration and the oxalate contained in the acetic acid solution acidified with sulfuric acid was titrated with potassium permanganate. The solubility values are given in the table and lie between $0.6 \cdot 10^{-4}$ mole/l (for lead) and $43.1 \cdot 10^{-4}$ mole/l for barium. The solubility increases initially with an increase in the concentration of the acid and reaches its maximum for Ca and Pb at 1-2 ml/l, for Sr, Ba, Cd at 2ml/l, for Fe, Co, Zn at 1 ml/l and for Ni and Mn at 0.6 ml/l, whereafter it decreases slowly (Diagram, Fig 1). There are 1 figure, 1 table, and 13 references, 5 of which are Soviet.

ASSOCIATION: Kafedra analiticheskoy khimii Donetskogo industrial'nogo instituta (Chair of Analytical Chemistry of the Donets Institute of Industry)

SUBMITTED: July 14, 1958

BABKIN, M.P.; VOLOSKOVETS, A.L.

Determination of the phenol content in waste waters by hitration. Nefteper. i neftekhim. no.3:7-8 '63. (MIRA 17:9)

1. Donetskiy politekhnicheskiy institut.

BABKIN, V.P.; VOLOSHCHUK, A.L.

Photocolorimetric determination of phenols by pyramidon. Ukr. khim. zhur. 30 no.12:1347-1349 '64 (MIRA 18:2)

1. Donetskiy politekhnicheskiy institut.

ISUPOV, V.F., inzh.; NOSOV, V.A., inzh.; SUKHMAN, L.Ya., inzh.; SMIRNOV, L.A., inzh.; CHEPURNOVA, A.A., inzh.; Prinimali uchastiye: SEMENENKO, P.P.; GLAGOLENKO, V.V.; KOROSTELEV, S.K.; VOLOSNIKOV, B.M.; BELYAKOV, A.I.; FADEYEV, I.G.; ROMANOV, A.A.

Use of lightweight grog firebrick for the lining of riser heads. Stal' 22 no.6:517-518 Je '62. (MIRA 16:7)

1. Metallurgicheskiy kombinat im. Serova i Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov.
(Steel ingots) (Refractory materials)

VOLOSNIKOV, Vladimir Petrovich; SIROTIN, A.A., kand.tekhn.nauk, red.; ANTIK, I.V., red.; VESHNEVSKIY, S.I., red.; KULEBAKIN, V.S., red.; SMIRNOV, A.D., red.; SOTSKOV, V.S., red.; STEFANI, Ye.P., red.; SHUMILOVSKIY, N.N., red.; BORUNOV, N.I., tekhn.red.

[Use of computers for automating electric drives] Ispol'zovanie vychislitel'nykh mashin dlia avtomatizatsii elektroprivodov. Moskva, Gos.energ.izd-vo, 1960. 119 p. (Biblioteka po avtomatike, no.17). (MIRA 14:3)

(Automatic control) (Electronic calculating machines)
(Electric driving)

VOLOSNIKOV, V.P.; SARDINSKIY, N.P.

Light pulse loop regulator for a continuous spring rolling mill. (MIRA 14:12)
Prom.energ. 17 no.1:38-43 Ja '62.
(Rolling mills)
(Governors(Machinery))

ANDRASHNIKOV, B.I.; VOLOSNIKOV, V.P.

Contactless system of automatic control of continuous production lines for the preparation of compounds with the application of electron computer elements. Kauch. i rez. 24 no.5:10-13 My '65. (MIRA 18:9)

1. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy rezinovoy promyshlennosti i Dnepropetrovskiy institut "Elektrotyazhkhimproyekt."

S/148/60/000/009/015/025
A161/A030

AUTHORS: Vydrin, V.N., Volosnikov, V.P., Sardinskiy,N.P., and Amosov,P.N.

TITLE: Investigation of lead in a continuous merchant mill

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no. 9, 1960, 110-115

TEXT: Theoretical lead calculation methods exist for rolling strip on smooth rollers only. The new method described permits measurements of lead on any rolling mill. It is based on measurement and comparison of distances passed by a point on the surface of the roller and a point on the surface of metal being rolled. Two electromechanical pickups (interrupters) watch the velocity of the rollers and of the strip. The pickups (Fig.1) have a collector (1) at the same axle (2) with a disc (3) with file-cut on the edge to prevent slip. The axle runs on two ball bearings in casing (5) and is fixed by the bushing (6) and cover (7), and sealed with gaskets (8 - and 9) and packing (10). The collector plates are connected to the pickup mass through the contact (11) so that the brush slides alternately over the conducting and over the idle plate when the disc rotates, and the circuit

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interrupts. The brush holder (12) is attached by means of the bracket (13). The circuit closes as many times during one revolution of the disc, as many collector plates are connected with the pickup body. Two like pickups rotating at the same velocity give the same number of pulses in a time unit, and the velocity of the two discs in contact with the roller and with the strip will differ by the value of lead. A photo shows the pickups in operation (Fig.2). Pulses from the pickups can be recorded on film with a МПО-2 (MPO-2) oscillograph, or they can be counted directly with the use of a special system. The oscillographing is simple. An oscillogram is shown (Fig.3). But the processing of measurement results is not convenient. The special counting system is an electric computer, illustrated in a block diagram (Fig.4). Voltage pulses from the two pickups МД-1 and МД-2 go into a limiting circuit ОВИ-1 or ОВИ-2 ("ogranichitel' vkhodnykh impul'sov" = input pulse limiter), for even a slight beat of the collector changes the transition resistance between it and the brush, and the pulse amplitude changes. Pulses limited in amplitude go on to amplifiers У-1 and У-2, and on to the shaping circuit ФИС consisting of a half-cycle multivibrator with cathode and anode-grid connection. Sharp output pulses from the ФИС with

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50-60 microsecond duration are the count pulses. A special control system has been built for a precise simultaneous start and end of the count from both pickups, with start push button ПК earthing the anode voltage circuit through a high-resistance resistor. The voltage difference formed at the moment is differentiated and fed into the pulse-forming circuit ФИ, and the voltage front rises abruptly. The pulse from the ФИ is differentiated, amplified in the amplifier У-3 and fed to start the control trigger УТ. The excitation time of the trigger is the metering time. The trigger УТ controls through the cathode follower КП, the coincidence circuits И receiving also the pulses from the ФИС units. The counting storage units СНР-1 and СНР-2 count pulses during the excitation time of the trigger УТ. The УТ is returned into the start position by again pressing the starting push button ПК. The counting storage units are binary counters, but the counters used in experiments were decade counters (with ten series-connected triggers) permitting count $2^9 + 2^8 + 2^7 + 2^6 + 2^5 + 2^4 + 2^3 + 2^2 + 2^1 + 2^0 = 1023$ pulses. This was sufficient at a rolling speed of up to 10 m/sec and 2 sec metering time. Neon lamps are connected into the anode circuits of the triggers for fixing the excitation. The system is returned into a start position after metering

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by the synchronization push-button КС through the pulse shaper ФИ, differentiating circuit ДЦ, detector Д for producing unipolar positive pulses, and the amplifier У-4. This return system works like the counting control system. The portion of Fig.4 separated out by a dashed line shows the portion of the system that was absent in the described operating model, but which can easily be built. It is a system for automatic comparison of data that can produce digital readings, or readings in the form of voltage or current on a dial indicator graduated in lead units, or on an oscillograph. This automatic comparator may be in the form of a usual parallel adder working as subtracter. In this case it would be controlled from a shock oscillator excited by synchronization pulse with subsequent formation of the produced pulse series into a series of sharp pulses for controlling the operation of the adder. This effect can be obtained also with the use of any type of delay line. This comparing unit can solve the equation

$$i = \frac{100}{n_g} \Delta n\%$$

where i is the lead value in per cent; Δn - the difference of the counted

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pulse values; n_{β} - the number of pulses counted from the pickup on the roll. The metering error is 0.098% at maximum pulse number 1023. Experiments were carried out on the planishing stand No.9 of the mill, in rolling spring steel strip 75 x 9.5 mm. The results of pulse count are given in a table. The mean lead in normal rolling was 4.9%, the maximum 7.6%, and the minimum 2.7%. The effect of tension on the lead is shown in curves (Fig.5). At a certain degree of velocity mismatch, when the lead curve crosses the X axis, the strip slips in the rollers. The front tension increases lead, but it was produced by the No.10 stand alone in this case, and the rear tension from the stands No.1 to 8 was stronger. Conclusion: The suggested metering method permits: a) measuring and recording on oscillograph film the value and the variations of lead or lag in any rolling mill; b) to reveal slip of rolls; c) to determine the rolling diameter in rolling in grooves from the relation

$$\frac{n_{\Pi}}{n_{\beta}} = \frac{D_K}{D_{\delta}}$$

where n_{Π} - the number of pulses of the pickup on the strip; n_{β} - the pulses

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number from the pickup on the roll; $D_б$ - the roll barrel diameter; $D_к$ - the rolling diameter. There are 5 figures and 1 table.

ASSOCIATION: Chelyabinskiy politekhnicheskiy institut (Chelyabinsk Polytechnical Institute) and Chelyabinskoye otdeleniye GPI "Tyazhpromelektroproyekt" (The Chelyabinsk Branch of the GPI "Tyazhpromelektroproyekt")

SUBMITTED: 7 December 1959

Card 6/6

STOLBOV, Yu.I., inzh.; VOLOSNIKOV, V.V., inzh.

Automatic machine for the pulsating arc welding of nonretractable pipeline butt joints. Svar. proizv. no.4:36-38 Ap '63. (MIRA 16:5)

(Electric welding--Equipment and supplies) (Pipelines--Welding)

VOLOSHOV, A.

Standardization of radio measurement equipment. Standartizatsiia 29 no.10:20-21 O '65. (MIRA 18:12)

MARTYNOVA, O.I., kand.tekhn.nauk; REZNIKOV, M.I., kand.tekhn.nauk;
VOLOSNIKOVA, A.I., inzh.

Solubility of aluminum hydroxide in water at temperatures up to 360°C. Izv. vys. ucheb. zav.; energ. 5 no.2:85-91 F '62. (MIRA 15:3)

1. Moskovskiy ordena Lenina energeticheskiy institut. Predstavlena kafedrami khimii i kotel'nykh ustanovok.
(Aluminum hydroxide)

VANYUKOV, I.I.; GORLOVSKIY, S.I.; ZASPIKHIN, N.V.; LIPKINA, T.Ye.; Prinimali uchastiye: LAZAREVSKIY, A.F.; ZELENOVA, I.M.; VOLOSNIKOVA, T.P.; TOMKOVICH, Ye.I. [deceased]; PETROV, I.V.; MOSOLOV, M.V.; NIKIFOROVA, D.I.

Use of high molecular organic depressants in the flotation of copper-nickel ores. Obog. rud 6 no.2:3-9 '61. (MIRA 14:8)

(Flotation—Equipment and supplies) (Nonferrous metals)

S/139/61/000/002/006/018
E032/E414

21.2100

AUTHOR: Volosnykh, N.A.

TITLE: Calculation of Electron Orbits in a Betatron With an Increasing Toroidal Magnetic Field

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1961, No.2, pp.46-51

TEXT: In the linear approximation, the motion of electrons in the transverse cross-section of the chamber of a betatron with a toroidal field is described by G.I.Dimov and G.P.Fomenko (Ref.1)

$$\ddot{U} + \frac{ieB(t)}{m}\dot{U} + \left(\frac{ie\dot{B}}{2m} + \omega^2 - Q\right)U = 0. \qquad (1)$$

Here $U(t) = \xi(t) + i\eta(t)$ is a complex function giving the position of the electron in the transverse cross-section of the chamber, ξ are η cartesian coordinates with origin on the equilibrium orbit, and ω^2, Q are constants depending on the focusing and space-charge forces. The space charge is assumed to

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be uniformly distributed through the chamber. An equation similar to Eq.(1) was investigated by Dimov and Fomenko (Ref.1) who were largely concerned with the intermediate and final stages of the acceleration process. A more accurate solution is required for the initial stage. Such a solution is obtained in the present paper. It is assumed that electron mass is constant and that the toroidal magnetic field is linearly dependent on time so that $B(t) = B_0 + Bt$, (B = const). Using the substitution

$$z = ia(\vartheta + t)^2,$$

$$y(z) = (ia)^{-1/4} z^{1/4} e^{z/2} U,$$

$$\vartheta = \frac{B_{0r}}{B}; \qquad a = \frac{eB}{2m},$$

Eq.(1) is transformed into the Whittaker equation

$$y'' + y\left(-\frac{1}{4} + \frac{k}{z} + \frac{1/4 - \mu^2}{z^2}\right) = 0 .$$

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where $\mu = 1/4$; $k = ix$, $x = \frac{Q - \omega^2}{4a}$.

Since 2μ is not an integer, the general solution of this equation is

$$y(z) = A_1 z^{3/4} e^{-z/2} F_1(z) + A_2 z^{1/4} e^{-z/2} F_2(z)$$

where $F_1(z)$ and $F_2(z)$ are nondegenerate hypergeometric functions

$$F_1(z) = F\left(\frac{3}{4} - ix;\ \frac{3}{2};\ z\right),$$

$$F_2(z) = F\left(\frac{1}{4} - ix;\ \frac{1}{2};\ z\right);$$

and A_1 and A_2 are arbitrary constants. Using the substitution $a(\vartheta + t)^2 = x$; $(z = ix)$ the solution of Eq.(1) is found to be

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$$U(t) = A_1 a^{1/4} \exp\left[i\left(\frac{3\pi}{8} - x\right)\right](0 + t)\, F_1(ix) + \\ + A_2 a^{1/4} e^{i\left(\frac{\pi}{8} - x\right)} F_2(ix). \qquad (2)$$

The constants A_1 and A_2 are determined by the initial conditions $U(t_0) = U_0$, $\dot{U}(t_0) = \dot{U}_0$ and are given by

$$A_1 = \frac{e^{i\left(x_0 - \frac{3\pi}{8}\right)}}{a^{1/4} F_1(ix_0)} \times \\ \times \frac{\dot{U}_0 + 2ia^{1/4} U_0 x_0^{1/4}\left[1 - \frac{0{,}25 - ix}{0.5}\frac{F_4(ix_0)}{F_3(ix_0)}\right]}{1 + 2ix_0\left[\frac{0{,}75 - ix}{1{,}5}\frac{F_3(ix_0)}{F_1(ix_0)} - \frac{0{,}25 - ix}{0{,}5}\frac{F_4(ix_0)}{F_3(ix_0)}\right]};$$

$$A_2 = U_0 \frac{e^{i\left(x_0 - \frac{\pi}{8}\right)}}{a^{1/4} F_2(ix_0)} - A_1 e^{-i\frac{\pi}{4}} x_0^{1/4} \frac{F_1(ix_0)}{F_2(ix_0)},$$

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Calculation of Electron ...

where x_0 corresponds to t_0 and $F_3(lx) = F\left(\frac{7}{4} - lx;\ \frac{5}{2};\ lx\right)$

$$F_4(lx) = F\left(\frac{5}{4} - lx;\ \frac{3}{2};\ lx\right).$$

In order to complete the calculation it is necessary to compute the functions $F_1(2)$, $F_2(2)$, $F_3(2)$ and $F_4(2)$. Direct calculation of these functions is not possible because of the slow convergence of the series. They are therefore estimated from the asymptotic representation of the degenerate hypergeometric function. The appropriate formulae are

$$F\left(\mu - k + \frac{1}{2};\ 2\mu + 1;\ z\right) \sim$$

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E032/E414

Calculation of Electron ...

$$\sim \frac{\Gamma(2\mu+1)}{\Gamma\left(\mu-k+\frac{1}{2}\right)} \exp\left[ix+i\frac{\pi}{2}\left(-k-\mu-\frac{1}{2}\right)\right] x^{-k-\mu-\frac{1}{2}} \Phi(k,\mu,z)+$$

$$+\frac{\Gamma(2\mu+1)}{\Gamma\left(\mu+k+\frac{1}{2}\right)} \exp\left[-i\frac{\pi}{2}\left(k-\mu-\frac{1}{2}\right)\right] x^{k-\mu-\frac{1}{2}} \Phi(-k,\mu,-z),$$

where

$$\Phi(k,\mu,z) = 1+\sum_{q=1}^{\infty}\frac{1}{q!z^q}\prod_{n=1}^{q}\left[\mu^2-\left(k-n+\frac{1}{2}\right)^2\right].$$

The above four functions are clearly special cases of

$$F\left(\mu - k + \frac{1}{2};\quad 2\mu + 1;\quad z\right)$$

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Calculation of Electron ...

Substituting for A_1 and A_2 and the asymptotic expressions for $F_1(z)$ into Eq.(2), the final solution of Eq.(1) is found to be

$$U(x) \sim \frac{U_0 M(x)}{M_1 M_0} \left(\frac{x_0}{x}\right)^{1/6} \left\{ E_1 e^{i\psi} + E_2 e^{-i(x+\psi)} \right\}, \qquad (3)$$

where

$$\psi(x) = \operatorname{Im} \ln \Gamma\left(\frac{3}{4} + ix\right) - x \ln x - \varphi(x) - \frac{3\pi}{8},$$

$$M(x) = |\Phi(x)|,$$

$$\varphi(x) = \arg \Phi(x),$$

$$\Phi(x) = \Phi\left(ix;\ \frac{1}{4};\ ix \right) =$$

$$= 1 + \sum_{q=1}^{\infty} \frac{i^q}{q! x^q} \prod_{n=1}^{q} \left(n - \frac{1}{4} - ix \right) \left(n - \frac{3}{4} - ix \right),$$

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$$M_1 = 2\cos\left(\frac{x_0}{2} + \psi_0 + \alpha\right),$$

$$\alpha = \operatorname{Im} \ln \frac{\Gamma\left(\frac{1}{4} + ix\right)}{\Gamma\left(\frac{3}{4} + ix\right)} + \frac{\pi}{4}.$$

The subscript o indicates that the appropriate quantity is to be taken at the initial instant of time t_0. The constants E_1 and E_2 are given by the following formulae

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Calculation of Electron ...

$$E_1 = e^{i\left(\frac{x_0}{2}+\alpha\right)} - 2iC\sin\alpha\, e^{-i\psi_0},$$

$$E_2 = e^{i\left(\frac{x_0}{2}-\alpha\right)} + 2iC\sin\alpha\, e^{i(x_0-\psi_0)},$$

$$C = \frac{M_0M_1 - K_2 - K_3}{K_1 + K_2},$$

$$K_1 = -iM_0M_1x_0^{-1}\cos\left(\frac{x_0}{2}+\psi_0\right),$$

$$K_2 = 2\left[K_4\cos\left(\frac{x_0}{2}+\psi_0+\alpha\right) - K_3\cos\left(\frac{x_0}{2}+\psi_0\right)\right],$$

$$K_3 = e^{i\left(\frac{x_0}{2}+\alpha+\alpha\right)}\Phi_{24} + e^{-i\left(\frac{x_0}{2}+\alpha+\alpha\right)}D_{14},$$

$$K_4 = e^{i\left(\frac{x_0}{2}+\alpha\right)}\Phi_{23} + e^{-i\left(\frac{x_0}{2}+\alpha\right)}D_{13},$$

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$$K_5 = i\frac{U_0}{U_0}(x_0 a)^{-1/3} M_0 M_1,$$

$$a = \operatorname{Im} \ln \Gamma\left(\frac{3}{4} + ix\right) - \frac{3\pi}{8} - x \ln x_0,$$

$$D_{13} = \frac{1}{x_0}\left(x + i\frac{3}{4}\right)\Phi_{13},$$

$$D_{14} = \frac{1}{x_0}\left(x + i\frac{1}{4}\right)\Phi_{14},$$

$$\Phi_{13} = \Phi\left(\frac{1}{2} - ix;\ \frac{3}{4} - ix\right) =$$

$$= 1 + \sum_{q=1}^{\infty} \frac{i^q}{q!x^q} \prod_{n=1}^{q}\left(n + \frac{3}{4} - ix\right)\left(n - \frac{3}{4} - ix\right),$$

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$$\Phi_{14} = \Phi\left(\frac{1}{2} - lx;\ \frac{1}{4};\ -lx\right) =$$

$$= 1 + \sum_{q=1}^{\infty} \frac{l^q}{q!\,x^q} \prod_{n=1}^{q} \left(n + \frac{1}{4} - lx\right)\left(n - \frac{1}{4} - lx\right),$$

$$\Phi_{23} = \Phi\left(-\frac{1}{2} + lx;\ \frac{3}{4};\ lx\right) =$$

$$= 1 + \sum_{q=1}^{\infty} \frac{(-l)^q}{q!\,x^q} \prod_{n=1}^{q} \left[(n-1) + \frac{3}{4} + lx\right]\left[(n-1) - \frac{3}{4} + lx\right],$$

$$\Phi_{24} = \Phi\left(-\frac{1}{2} + lx;\ \frac{1}{4};\ lx\right) =$$

$$= 1 + \sum_{q=1}^{\infty} \frac{(-l)^q}{q!\,x^q} \prod_{n=1}^{q} \left[(n-1) + \frac{1}{4} + lx\right]\left[(n-1) - \frac{1}{4} + lx\right]$$

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Calculation of Electron ...

Eq.(3) can be used to determine the departure of the trajectory from the equilibrium orbit at any time $t > t_o$ where t_o is the instant of entry of the electron into the chamber.
Acknowledgments are expressed to G.I.Dimov for suggesting this topic and his interest in the work. There are 2 Soviet references.

n.b. This is an abbreviated translation.

ASSOCIATION: NII pri Tomskom politekhnicheskom institute imeni S.M.Kirova (Scientific Research Institute at the Tomsk Polytechnical Institute imeni S.M.Kirov)

SUBMITTED: June 24, 1960

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SOV/20-128-3-17/58

9(3)

AUTHOR: Volosok, V. I.

TITLE: On a Kind of Relaxation Oscillations in an Electron Beam

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 3, pp 495-498 (USSR)

ABSTRACT: At high current densities, relaxation oscillations may occur in electron beams, which are due to the presence of a virtual cathode in the beam. Even at very low amperages, such oscillations may occur in the beams. At high amperages i_1, these oscillations exhibit specific features as against relaxation oscillations in the beam of primary electrons: 1) The beam of secondary electrons is not monoenergetic; the conditions of the occurrence of oscillations therefore differ from oscillations at the point of primary electrons, which applies to a certain extent also to their nature. Besides, these conditions depend largely on the spectrum of secondary electrons. 2) The period of oscillations is determined by the rate of ionization of the remaining gas by primary electrons. This is due to the fact that the ionization of secondary ions is weak, on account of their low energy. 3) The potential jump occurring in the beam as the virtual cathode vanishes, and

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likewise the velocities of simultaneously scattering ions may attain high values if the duration of the jump is considerably shorter than the period of scattering. The mean velocity of electrons rises after the jump, while their space charge is considerably reduced without any variation in the space charge of the ions. The author made experiments on the electron beam within a cylindrical system. A diagram illustrates typical oscillograms simultaneously recorded by two probes. The potential in the beam center is determined by the space charge of secondary electrons as soon as the high-tension current has been switched on, and it drops with increasing ionic compensation. However, if the beam potential is almost equal to zero, compensation is slightly slowed down, followed up by a rapid upward potential jump and a somewhat slower drop. The jumps then recur in a period inversely proportional to the pressure within the system. Some additional experiments were made for a more exact checking of the mechanism of the found oscillations: 1) A constant potential V_{col} was applied to the collector, and the beam potential was investigated by means of a net-shaped probe. The shape of oscillations slightly varies when negative potentials are applied to the collector,

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whereas the amplitude of oscillations decreases considerably and does not depend on V_{col} when positive oscillations occur at the collector ($V_{col} > 30$ v). 2) The found oscillations depend but little on the other parameters of the system. 3) Oscillations vanish when the amperage of primary electrons drops. In some cases, relaxation oscillations excite oscillations of higher frequency, whose mechanism has not yet been investigated in detail. There are 4 figures and 9 references, 4 of which are Soviet.

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya Akademii nauk SSSR (Physics Institute of the Siberian Department of the Academy of Sciences, USSR)

PRESENTED: May 27, 1959, by L. A. Artsimovich, Academician

SUBMITTED: March 23, 1959

Volosok, V. I.

AUTHORS: Volosok, V.I., Chirikov, B.V. 57-11-24/33

TITLE: On Compensation of Space Charge in Electron Beams. (O kompensatsii prostranstvennogo zaryada elektronnogo puchka)

PERIODICAL: Zhurnal Tekhn.Fiz., 1957, Vol. 27, Nr 11, pp 2624-2630 (USSR)

ABSTRACT: The compensation of the space charge of a cylindrical electron beam by a virtual cathode with the help of ions developping on the occasion of ionization of the residual gas is investigated. The investigation is carried out by the impulse-process by means of measuring the electric field of the beam-space-charge. For this purpose a search electrode in form of a ring was located into the anode. The observations were made by the aid of an impulse-oscillograph. The behavior of the electron beam with respect to time was investigated according to the oscillograms of the electric field of the beam and of the current flowing towards the collector. At sufficiently small amperages the usual compensation of the space charge was observed in accordance with E.G.Linder and K.G.Hernquist (J.Appl. Phys., 21, 1088, 1950). But as soon as the amperage exceeded a certain $I_{critical}$ value, the course of the oscillogram changed. The field voltage remained practically constant for some time after switching on the high voltage, but afterwards it decreased intermittently. The current flowing towards the collector, however, increased all the time in order to reach its steady value in the moment of of the jump. After the jumps the usual compensation.was observed

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in the beam. The fact that before the jump a part of the current does not reach the collector can only be explained by the presence of the virtual cathode in the beam, Which reflects some of the electrons. The voltage of the electric field immediately after the jump (E_2) did not depend on the residual gas pressure and fell approximately in linearity with the increase of current. The time τ_2, in which the field-voltage jump took place, was measured. A qualitative explanation of the observed phenomena is given. There 7 figures and 5 Slavic references.

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